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How to Select an
Electronic Health Record System

These 12 steps will help make the selection process easier and lead you to the EHR that's right for your practice.

So you've decided to purchase an electronic health record (EHR) system, and your initial research reveals that more than 200 companies claim to make an EHR. You've barely started looking, and already you feel overwhelmed. A natural tendency might be to call a few vendors that you've read or heard about and ask them for a demo. Stop. Unless you want the vendors to control the selection process, you need a plan. Remember, the EHR will have a huge impact on your practice, going to the very heart of how you practice medicine. A rushed or ill-informed decision could make your life miserable.

This article is designed to help you develop that plan. By adhering to a logical and systematic selection process, you'll be able to make a high-quality decision about which EHR to choose. The process described below is based on my experience and research as an EHR committee chair for an 86-physician group. Although my group is large, I work in an office of three physicians, and I believe the following steps will apply to practices of all sizes.

Step 1: Identify your decision makers

If you're in solo practice, this is easy. You're it. In a large group, a carefully selected committee will be more appropriate. Unlike, perhaps, selecting practice management software, this should be a physician-led effort, not one you delegate to your office manager or management team. Many selection efforts have been led by a "physician champion," someone absolutely committed to learning about EHRs and promoting the idea to his or her colleagues. This individual has to be willing to put in a lot of extra, typically

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Form a physician-led election committee early in the selection process.

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Be sure to include your office manager or practice administrator, since he or she will have to be heavily involved in implementing the EHR your group chooses.

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Before you start looking at specific systems, determine what you hope to accomplish with an EHR and identify the functionality you'll need to meet those goals.

uncompensated, hours doing research and management tasks. Since you're reading this article, perhaps that's you.

EHRs are often met with great skepticism and resistance. To avoid an aborted or seriously delayed selection process or a failed implementation, make sure that some of your practice's most influential people are on the selection committee. You will need at least one manager to help you implement this system, so make sure your practice manager or his or her trusted delegate is on the committee. If you have a key nurse or receptionist whom the others tend to follow, invite him or her aboard. If you have a partner who could easily derail this process, consider inviting him or her to participate as well. And remember, the most influential people are not always the ones with the titles.

Step 2: Clarify your goals

What inefficiencies or limitations do you have in your practice currently, and what do you hope to accomplish with an EHR? Do you waste a lot of time looking for charts? Do you play phone tag with patients because you don't have ready access to needed information? Do lab reports take forever to get into the chart? Are provider notes hard to

KEY POINTS

• To reduce your list of potential vendors to a manageable length, consider only those systems that have already developed interfaces with the practice management software you use, that are marketed to practices the same size as yours and that are well rated in published surveys.

• How the EHR enables users to create and complete tasks, find information, view labs, manage health maintenance reminders and write prescriptions can be more important than how easily it creates a patient note.

read? Are you interested in electronic prescribing? Do you want to be able to print appropriate patient education materials with the push of a button? Do decision support tools matter to you? Is patient e-mail or Web access to your practice in your plan?

The list of EHR functionalities that appears below may be a useful tool as you begin to prioritize your needs.

Step 3: Write a request for proposal

This is a tedious but necessary step. A request for proposal (RFP) will tell the prospective vendor about your practice, its resources and

EHR FUNCTIONALITY

This list, which includes most of the capabilities of EHRs, is designed to help you organize your priorities. As you clarify your goals, you may want to rank each of these functionalities in order of need or divide the functions into three groups: must-have, want-to-have and not critical.

☐ Results reporting (lab, radiology, other)	☐ Secure external e-mail for patients
☐ Order entry (lab, radiology, other)	☐ Patient Web portal
☐ Multiple note creation options (templates, macros, dictation, voice recognition, hand writing recognition)	☐ Patient education
	☐ Scanning
☐ Automated E/M coding adviser	☐ Automated chart documentation (problem lists, medication lists, vital signs, health maintenance)
☐ Software interfaces with internal and outside labs	
☐ Prescription writer and database (with online formularies and drug-interaction checking)	☐ Automated charge entry
	☐ Inpatient reports (downloadable)
☐ Flow charting (labs, vital signs, growth parameters)	☐ Electronic fax reports (dictation, lab, radiology) to outside specialists
☐ Remote access	☐ Patient follow-up/health-maintenance deficiency alerts
☐ Referral ordering and tracking	
☐ Patient registration information (master patient index)	☐ Practice population analysis tools
	☐ Decision support tools
☐ Telephone message documentation and tasking	☐ Security (audit trails, user access hierarchy, passwords)
☐ Internal e-mail	

your priorities in terms of EHR functionality. The vendors' responses will allow side-by-side comparisons of products. Responding to a well-prepared RFP will take a fair amount of effort on the vendor's part, so invite only serious contenders to participate. For a sample RFP outline see below. A downloadable, modifiable RFP is available at http://www.orchardsoft.com/choosing/rfp/samplerfp.html. It is an RFP for a laboratory information system, but the basic structure and questions will work for an EHR.

Step 4: Selecting the RFP recipients

How do you go from more than 200 products to a dozen without seeing any products? I suggest you use three defining criteria to winnow the products: 1) Does the software have a history of interfacing with your practice management system (PMS)? 2) Is the EHR typically marketed to practices of your size? and 3) Does the EHR have favorable published ratings?

PMS interface. To avoid double entry of data such as patient demographics and diagnoses, your PMS and EHR must be able to share data. This is typically done through a software interface. To build and maintain an interface requires the cooperation of personnel from both the PMS and EHR companies. Each time the EHR software is upgraded (and most good EHR products promise at least one upgrade per year), any interfaces have to be updated. Many EHR developers will say that they can interface with any system, but frankly I wouldn't want to be their first. To determine which EHR companies have created interfaces with your PMS, ask your PMS company. This criterion alone may dramatically narrow the field.

If you aren't happy with your current PMS or anticipate outgrowing it soon, it may be a good idea to consider selecting a new one before you buy an EHR. Ideally, the PMS and EHR company would be one and the same, but your PMS company may not offer an EHR product, or if it does, it may not offer the functionality or service that you feel you need. As more physicians buy EHRs, the trend of the future will likely be integrated EHR-PMS products that don't require interfaces.

Practice size. Most EHR vendors market their products to smaller practices (one to 15 providers), medium-sized practices (10 to 99 providers) or large practices (greater than 100 providers,) although a few market to all sizes. Picking RFP recipients on this basis will help you avoid having a "large practice EHR" declining to respond to your RFP because you're "too small." ➤

REQUEST FOR PROPOSAL (RFP) OUTLINE

A request for proposal that follows an outline like the one below will tell prospective vendors what they need to know about your practice to provide you with useful information about their products, and it will help to ensure that the responses you receive can be more easily compared.

   I. Cover letter
  II. Introduction and selection process
 III. Background information about your practice
     a. Size and location
     b. Current practice management system and any EHRs
     c. Current computer hardware
     d. Current network information
 IV. Your practice's desired EHR functionality (prioritized)
  V. Vendor information
     a. Company history
     b. Number of employees (separate numbers for sales, support, research and development, and management)
     c. Financial statements
     d. History of their EHR product
     e. List of all current EHR users and list of users similar to your practice in size and type (including how long they've been using the software and, ideally, what version they're using currently)
 VI. Product description
     a. How it performs the functions described in section IV
     b. Other functions it performs
     c. Product brochures, etc.
     d. Software versions and release dates
 VII. Hardware and network requirements
VIII. Customer maintenance and support
 IX. Vendor training
  X. Implementation plan
 XI. Interface history and capabilities
 XII. Proposed costs and payment schedule
XIII. Warranties
XIV. Sample contract

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Developing a request for proposal (RFP) will take significant effort, but it will impose some order on the responses you'll receive from vendors and make comparisons easier.

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To shorten the list of vendors you'll send RFPs to, consider whether the vendor has already developed an interface with your practice management software, whether it markets its product to practices like yours and how it performs in published ratings.

◄ ➤

If you are dissatisfied with your practice management software, it would be a good idea to replace it before you select an EHR.

And it will prevent you from wasting time reviewing an RFP response from a vendor whose product turns out to be ill suited for a practice of your size. You can obtain information on who markets to whom in a useful free white paper by Mark Anderson entitled "2004 EMR Functionality Survey Results," which is available at http://www.acgroup.org/pages/396843/index.htm.

EHR ratings. Several excellent sources for EHR ratings are available. In 2003, the American College of Rheumatology, in conjunction with the Aurora Consulting Group, evaluated EHRs in small practices. Go to http://www.rheumatology.org/products/coding/03emr_ack.asp to download their 50-page paper. Other ratings sources include the Health Information Management Systems Society (http://www.himss.org) and a Web site developed by Kirk G. Voelker, MD, at http://www.elmr-electronic-medical-records-emr.com. And if you want to go to one place where more than 150 vendors show their wares, consider the annual conference known as TEPR (Toward an Electronic Patient Record). Information on this can be found at http://www.medrecinst.com/conferences/tepr/index.asp.

Finally, go to the AAFP's Center for Health Information Technology, http://www.centerforhit.org, for information on EHR vendors that have agreed to the center's principles of affordability, compatibility, interoperability and data stewardship. AAFP members can get discounts on several well-known systems, and the AAFP has arranged for purchases to be made on a subscription basis, with monthly payments.

Step 5: Review the RFPs and narrow the field
So you've narrowed the field, sent out the RFPs and received your responses. Now it's time to review the responses. Your goal is to pick the top contenders to visit you and give a demonstration of their system. These are typically two- to three-hour affairs in the evening with some health food – such as pizza. Everyone on the selection committee should attend every demo in order to make fair comparisons. This is a huge time commitment, and your group's willingness to spend evenings away from their families will determine how many demos you can tolerate. Our group chose five from an original field of eight. Of those that were eliminated,

one vendor decided not to respond, one vendor didn't meet our training and service needs, and one didn't meet our deadline.

Step 6: Attend vendor demonstrations
Next, it's show time. Vendors will typically arrive for the demo with two to four people – one to two sales personnel, a skilled software presenter and perhaps a physician who is paid by the company. They'll be prepared to do a canned presentation that shows their software in the best light. For each of these presentations, you should do four things:

• Present them with one or two standard patient-visit scenarios to document, keeping the scenarios consistent from vendor to vendor;

• Try not to interrupt their demonstration every two minutes (my group was notorious for this);

• Don't focus solely on ease of note creation. Instead, pay attention to how the EHR enables users to find information, view labs, manage health maintenance reminders, write prescriptions, etc. These functions can be more important than how easily the EHR creates a patient note;

• Prepare a rating form in advance and ask every committee member to complete it at the end of each demo. You can then tabulate average or median results for each vendor. See the sample rating form on the opposite page.

Step 7: Check references
Check at least three references for every vendor that is still in the running. Ideally, references should include one or more physician users, an information technology (IT) person and a senior management person. The vendor will provide you with a list of references – likely the vendor's happiest customers, who may be financially rewarded for talking to you (e.g., discounts on service fees or individual rewards), so be skeptical. Nonetheless, these folks can be very informative and honest, in my experience. If you know a person or group not on the vendor's reference list that uses or has used their product, call them too. Have a prepared list of questions for these phone calls. A sample, structured interview is shown on page 60.

Another way to find references is to post a message on the AAFP-sponsored e-mail discussion list for EHRs. AAFP members can subscribe at http://www.aafp.org. From the

EHR DEMONSTRATION RATING FORM

Each person who observes vendor demonstrations should complete a form like the one below. The form you use should list the functionality that your selection group decided was most important to your practice. To analyze the results, assign 1 point to strongly disagree, 2 to disagree, 3 to unsure, 4 to agree, and 5 to strongly agree. Calculate average scores for each function and print a summary score sheet for each vendor.

PRODUCT: _____

DATE:_____

EVALUATOR: _____

Please evaluate the product based on all the information you have available at this time. If you need more information, please note that in your comments.

I. FUNCTIONALITY: This product performs the following functions with little user effort:

	Strongly disagree	Disagree	Unsure	Agree	Strongly agree
Results reporting (lab/X-ray)					
Progress/consult notes					
E/M coding					
Telephone message documentation and tasking					
Chart documentation (problem list, medication list, allergies, vital signs, health maintenance, trending lab values, etc.)					
Order entry (lab/X-ray)					
Prescription writer					
Formularies					
E-fax to outside physicians					
Remote access (e.g., to off-site transcription or physician's home)					
Referral management					
Charge capture without manual entry					
E-mail (encrypted)					
Health maintenance alerts					
Medical decision support tools					
Patient education materials					
Security (passwords, audit trails)					

Comments: _____
_____
_____

II. OVERALL EASE OF USE AND FLEXIBILITY

	Strongly disagree	Disagree	Unsure	Agree	Strongly agree
This product allows individual user-specific customization					
This product minimizes user data input					
This product offers multiple note creation options					

Comments: _____
_____
_____

◀ ➤

Check several references for each EHR you're considering, and go beyond the list of references the vendor provides you.

◀ ➤

A vendor rating tool can help you narrow your list of contender to two or three, which will be the focus of your site visits.

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Your rankings should be weighted to reflect the relative importance to your group of functionality, cost and vendor characteristics.

◀ ➤

Don't underestimate the importance of service, training, implementation support and the long-term viability of the vendor and the product.

QUESTIONS TO ASK EHR REFERENCES

A list of questions like this one will help you to make the most of your opportunities to talk with other practices about their experience with the EHRs you're considering purchasing.

Background

- How many physicians/nurse practitioners/physician assistants are in your group?
- How many office sites do you have?
- What year did you go live?
- What practice management software do you use?
- Do you own your own lab? Does the EHR interface with your lab?
- How many interfaces do you have with the EHR?

Provider usage

- What percent of your providers use the EHR?
- What functions do most/all of your providers use?
- Do your providers still dictate?
- What has been the most frustrating thing about the EHR for the providers?
- What has been the best thing?
- How much individual physician customization is there?
- Are you happy with the templates? Were they pre-loaded? How do they get modified?
- Have you saved money? Have you broken even?
- Does electronic prescribing work?
- Does e-faxing work?
- How have patients responded to the system?
- Can your physicians access the system from home? How do they do this?

Training & support

- How long does it take a physician to become fully trained/efficient in using the EHR?
- How long does it take a medical assistant to be trained?
- What kind of support system did you set up for the EHR? How many full-time support people are required?
- Have you been happy with the upgrades and support?
- Do you have an EHR committee? An IT medical director? Are physician "champions" involved in the maintenance, training and upgrading of your EHR?

Implementation & hardware

- Did the implementation go smoothly? How long did it take?
- Do you have a wide area network (WAN)? How much bandwidth is used?
- Was the EHR preloaded with CPT and ICD-9 codes? Was it preloaded with formularies?
- What hardware do the physicians use? What hardware do the medical assistants use?
- If you are using a wireless network, how well does it work?
- How much of the paper chart did you scan or input into the EHR? How did you do it?
- Do you still use paper? If paperless, how long did that take?

Satisfaction

- Would you buy this system again?
- What would you do differently?

AAFP home page, click on e-mail discussion lists, under the Membership heading.

Step 8: Rank the vendors

Now that you've reviewed the RFPs, seen the demos and done the reference checks, it's time to rank the vendors and narrow the field to two or three vendors for site visits. Given the time and resources involved, doing more than three visits is impractical. Even one visit could be a challenge for a busy solo physician.

Before you rank the vendors, you should formally weigh your priorities in the following areas:

- **Functionality.** How well does the product perform your desired functions?
- **Total cost.** How much will the

product cost, including hardware, software, support, etc.?

- **Vendor characteristics.** Does the vendor offer excellent service, training and implementation support, and are they financially secure?

Most physicians tend to put too much emphasis on functionality and cost while ignoring the critical nature of service, training, implementation support and the long-term viability of the vendor and product. If the system is not effectively implemented or maintained, it will not achieve its desired potential. And it will be more than a small inconvenience if the vendor you know and love goes bankrupt. We put a 40-percent emphasis on vendor characteristics, 40 percent on functionality and 20 percent on

VENDOR RATING TOOL

For each EHR product you are considering, assign a ranking from 1 to 5 (with 5 being best) for each of the criteria listed in the functionality and vendor characteristics categories below. Total the rankings for each vendor to determine a combined score for each category, then assign an overall ranking. For the cost section, supply a dollar amount for each criteria listed and then rank each vendor based on your assessment of its total initial and total annual costs. Next, consider the relative importance of the three categories and assign a percentage to each (e.g., functionality = 40 percent, cost = 20 percent and vendor characteristics = 40 percent). Finally, use these percentages to calculate the weighted scores for each vendor.

FUNCTIONALITY	VENDOR 1	VENDOR 2	VENDOR 3	VENDOR 4	VENDOR 5
Quality/presence of features we prioritized (see demo rating summaries)					
Ease of use (e.g., minimizes typing, is intuitive, simple layout)					
Speed (network/hardware configuration, minimizes keystrokes)					
Individual user flexibility • Multiple note creation options (transcribe, voice, template) • Provider can modify/create own templates • Provider can create own macros					
Preloaded templates and patient education					
Combined functionality score (total the rankings for each vendor)					
A Overall functionality ranking					

COST	VENDOR 1	VENDOR 2	VENDOR 3	VENDOR 4	VENDOR 5
Initial hardware and network upgrades					
Initial interfaces					
Initial software					
Total initial cost					
Annual software maintenance (includes upgrades and support)					
Annual interface upgrades					
Total annual cost (excludes initial costs)					
B Overall cost ranking					

VENDOR CHARACTERISTICS	VENDOR 1	VENDOR 2	VENDOR 3	VENDOR 4	VENDOR 5
Training					
Support					
Implementation					
Software upgrades					
Company stability					
Combined vendor characteristics score (total the rankings for each vendor)					
C Overall vendor characteristics ranking					

D Functionality	%
E Cost	%
F Vendor characteristics	%
	should total 100%

OVERALL RANKING	VENDOR 1	VENDOR 2	VENDOR 3	VENDOR 4	VENDOR 5
G Weighted functionality score ((A × D) ÷ 100)					
H Weighted cost score ((B × E) ÷ 100)					
I Weighted vendor characteristics score ((C × F) ÷ 100)					
Weighted overall score (G + H + I)					
Final Ranking					

cost. The sample vendor rating tool on page 61 breaks the selection criteria into these same three categories. (For another example, go to http://www.chcf.org/topics/view. cfm?itemID=21520.)

Cost estimates can be tricky. Vendors tend to present these in a way that makes side-by-side comparisons difficult, and they focus only on software costs. Be sure to do a comparative spreadsheet that captures all associated costs over the first five years including new hardware costs, new IT personnel, network upgrades, extra licenses and annual service and maintenance. [One such spreadsheet can be down-

the rest of the practice is with you. If you're in a small practice, hopefully you've involved all the key decision makers in the process to this point. If so, you can skip this step.

If you're in a larger practice, or one that has some potential naysayers, discuss your selection committee's recommendations with all the relevant stakeholders. Be prepared to "sell" your group on the EHR concept and this particular vendor. Invite the vendor to give another demo to the practice as a whole and be prepared to address a slew of questions and concerns. If significant concerns come to light that your committee didn't address

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loaded from the *FPM* Web site at http://www. aafp.org/fpm/20020400/57howm.html#1.] When we did this for our top four choices, we found the costs to be surprisingly similar.

Step 9: Conduct site visits
Once you've selected your final contenders, plan site visits to see how the systems perform. Go to practices that are similar in size and configuration to yours. If possible, go to one that is using the same PMS that you are using. Bring at least one physician and the most senior management person that will be responsible for the EHR purchase. Plan to visit with physicians and observe them with patients. Also talk to back-office personnel, relevant management and the practice's key IT personnel. Take notes. Use the visit to confirm or contradict your expectations of the product based on what you learned through the RFP, demo and references.

Step 10: Select a finalist
After each site visit, go back to your vendor ranking and see if it still holds. Select your top contender and a runner-up. If negotiations don't go well with your number one choice, you may want to fall back on number two. Also, having a serious back-up choice will give you more leverage in the negotiation process.

Step 11: Solidify organizational commitment
Now that you have picked the vendor you'd like to do business with, it's time to make sure

previously (if you did your homework, that's unlikely), be prepared to drop back to step seven and repeat any steps necessary to solidify your practice's commitment to the EHR.

Step 12: Negotiate a contract
Typical EHR contracts span from 10 years to lifetime. If the contract is to terminate in 10 years, be sure you know what happens after that. Current and future costs should be spelled out, as should the role the vendor will play and the amount of time the vendor will commit to the implementation process. Be sure to consider the possibility that the vendor could go out of business before you do. Request that the vendor's source code be put into escrow, and clarify the circumstances under which you could get access to it. Have a lawyer experienced in software contracts help with this step.

Final note
The EHR selection process is time consuming, but for a decision as important as this one, it's necessary. You can't afford to purchase an EHR impulsively, and you want to make sure your practice is with you. The entire process can take from six months to two years. Our group took 13 months, which I suspect is about average. If your selection process is methodical, critical and inquisitive, you will undoubtedly be happy with your final EHR choice. Good luck on your quest. **FPM**

Send comments to fpmedit@aafp.org.